SONY

Digital HD Videocassette Recorder

HVR-M10N/M10P

HDV™

HDV 1080i

Opening New Opportunities for Cost-effective HD Productions – the HVR-M10 HDV 1080i VTR

Developed using the HDV 1080i specification of the HDV™ format, the HVR-M10 Digital HD Videocassette Recorder provides HDV 1080i recording and playback capabilities for a variety of roles such as a simple playback viewer and a feeder for nonlinear editing systems.
It enables operators to record and play back 1080i HD signals, while maintaining the DVCAM™/DV recording and playback capabilities provided on current Sony DVCAM models.
What's more, the HVR-M10 also offers a down-conversion capability for its 1080i recordings. These features enable the HVR-M10 to be active immediately in current SD systems, while also providing a step-by-step migration to the HD world – operators can continue to upload materials in DVCAM or DV, and switch to HDV when the need arises, or upload in HDV 1080i using the down-conversion capability as required.
In addition to basic VTR features inherited from the DSR-11, the HVR-M10 also provides easy monitoring capabilities, with a built-in, 3.5-inch[1] type LCD monitor to display important information, such as the recorded image, audio level, and set-up menu.
The HVR-M10 provides a highly powerful, yet cost-effective tool for nonlinear editing system today and tomorrow.

1 Viewable area measured diagonally.

MAIN FEATURES

Advanced Recording and Playback Capabilities for Diverse Nonlinear Editing Needs

Switchable Recording and Playback – HDV 1080i/DVCAM/DV[3] and 60i/50i

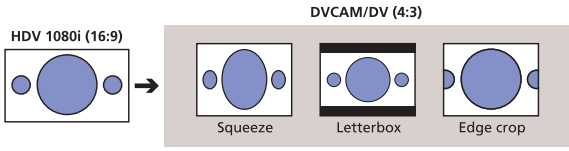
The HVR-M10 can switch between HDV 1080i, DVCAM and DV recording, providing full flexibility to record in either Standard or High Definition depending on production needs. In addition, it can be switched between 60i and 50i modes (NTSC and PAL), allowing for flexible productions without the need for two separate VTRs with each standard.

3 The HVR-M10 supports DV SP mode only; no support for DV LP mode.

Down-conversion Playback Capabilities

The HVR-M10 can convert material from 1080i down to 480i and 576i, and output these video signals through its i.LINK interface. In addition, these signals can also be output via either analog component, composite, or S-video connectors. This allows editing of recorded material with a nonlinear editing system using current DV editing software as well as recording SD signals to an external VTR, while simultaneously recording HDV signals with the HVR-M10. The HVR-M10 can also down-convert to 480p and 576p and output these signals through its analog component video connectors.

When down-converting these signals, the aspect ratio displayed can be converted from 16:9 to 4:3. Display modes can be selected from Squeeze, Letterbox or Edge crop.



Recording, Playback and Down-conversion Formats

60i Mode

Recording Format	Playback/ Down Conversion Format	i.LINK	Input		Output		
			Analog Composite	S-Video	Analog Component	Analog Composite	S-Video
1080/60i	1080/60i	○	–	–	○	–	–
	480/60p (16:9/4:3)	–	–	–	○	–	–
	480/60i (16:9/4:3)	○	–	–	○		
480/60i (16:9)	480/60i (16:9/4:3)	□	△		○		
480/60i (4:3)	480/60i (4:3)	□	△		○		

○: Available △: Switchable □: Switchable (input) / available (output)

50i Mode

Recording Format	Playback/ Down Conversion Format	i.LINK	Input		Output		
			Analog Composite	S-Video	Analog Component	Analog Composite	S-Video
1080/50i	1080/50i	○	–	–	○	–	–
	576/50p (16:9/4:3)	–	–	–	○	–	–
	576/50i (16:9/4:3)	○	–	–	○		
576/50i (16:9)	576/50i (16:9/4:3)	□	△		○		
576/50i (4:3)	576/50i (4:3)	□	△		○		

○: Available △: Switchable □: Switchable (input) / available (output)

i.LINK™[4] Interface

The HVR-M10 is equipped with a 4-pin i.LINK interface. This allows for on-cable digital transfer[5] of audio, video, and command signals to a connected VTR or nonlinear editing system in the HDV, DVCAM and DV formats.

4 i.LINK is a trademark of Sony Corporation used only to designate that a product contains an IEEE 1394 connector. Not all products with an i.LINK connector will necessarily communicate with each other. For information on compatibility, operating conditions and proper connection, please refer to the documentation supplied with any device with an i.LINK connector. For information on devices that include an i.LINK connection, please contact your nearest Sony office.

5 Insert and assemble editing using HDV material is not recommended with the HVR-M10.

REAR VIEW

Compact, Unique Design

The HVR-M10 is compact, with a small footprint that enables it to be unobtrusively added to existing work environments. The HVR-M10 is also unique – it can be placed either horizontally or vertically. In addition, it includes a control panel lid and a cassette compartment lid on its front.

Control Panel Lid Open

Cassette Compartment Lid Open

Built-in, 16:9 Widescreen LCD Monitor

The HVR-M10 includes a 3.5-inch[6] type color LCD monitor with a high resolution of approx. 250,000 pixels, allowing operators to view the input source during recording, or check the playback picture, in a widescreen aspect ratio of 16:9. This large screen is also helpful when setting menus or audio recording levels, as well as for monitoring the VTR and audio status.

6 Viewable area measured diagonally.

Status Check

At the touch of a button, operators can display the menu settings, mode of operation, time code and audio level indications superimposed over the video on the LCD monitor, allowing for easy status or settings checks during recording, playback and feeding.

2-channel Independent Audio Record Level Control with Audio Level Meter

Each input level for CH1 and CH2 can be independently adjusted using two audio level controls on the control panel and viewed with an audio level meter on the LCD monitor. The audio level meter can be recalled quickly and easily by a Status Check function.

Time Code Preset

The time code can be preset using any number in H/M/S/F (hours/minutes/seconds/frames) to record desired tape-position information. The time-code mode can be selected between "REC RUN" and "FREE RUN".
In addition to the time code, user bits can also be set.

External Control

The HVR-M10 comes equipped with the wireless Remote Commander™ unit, which provides control of basic functions. In addition, the HVR-M10 is equipped with a LANC terminal.

Battery Operation

With the optional NP-F970 InfoLITHIUM™ Rechargeable Battery Pack attached, the HVR-M10 can continuously record in HDV mode for up to 545 minutes, or up to 630 minutes in DVCAM/DV mode with the LCD monitor off. Battery information, such as the current charge level and current remaining recording time, can be displayed on the LCD monitor at the touch of a button.

Noiseless Design, with No Cooling Fan

The HVR-M10 requires no cooling fan, providing quiet program-production environments.

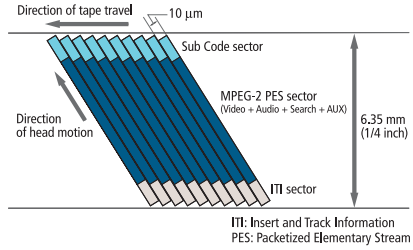
A New Addition to the HD Format that Broadens the Scope of HD Program Production

HDV 1080i Specification[2]

The HDV 1080i specification of the HDV format features 1080 effective scanning lines (interlace scanning system) and 1,440 horizontal pixels. It adopts the MPEG-2 compression format (MP@H-14 for video), which uses 8-bit digital component recording with a sampling rate of 4:2:0. MPEG-1 Audio Layer II is used as the audio compression format, allowing for two-channel recording with a sampling frequency of 48 kHz/16-bit. The HDV 1080i specification provides high picture quality that can be used for HDTV program production.

2 The HDV format also defines the HDV 720p specification, which features 720 effective scanning lines (progressive scanning system) and 1,280 horizontal pixels.

Track Pattern of the HDV 1080i Specification



Compatible with Existing and New DV Videocassette Tape

As a member of the proven DV family of formats, the HDV format has, from the outset, been developed for compatibility with all grades of DV videocassette tape. This allows operators to use high-grade DV videocassette tapes for applications where high robustness is critical, or consumer-grade videocassette tapes for more economical operations. For heavy-duty applications, a new high-grade Mini Cassette tape has been developed; the DigitalMaster™ PHDVM-63DM. This tape is compatible with the HDV, DVCAM and DV formats.

Long Recording Time

The HDV format adopts the same track pitch and tape speed as the DV format, thus offering the same recording time – a maximum of 63 minutes on a mini videocassette such as DigitalMaster tape.

FRONT VIEW

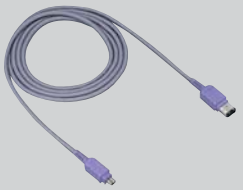
OTHER CONVENIENT FUNCTIONS

In order to provide the flexibility required for professional recording, the HVR-M10 offers a variety of convenient functions:

- Audio Dub (DVCAM mode only)
- Headphone Jack
- Index Marking
- Index Search

OPTIONAL ACCESSORIES

VMC-IL4408A/IL4415/IL4435
i.LINK Cable (4-pin to 4-pin)



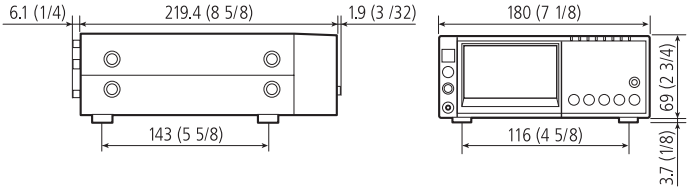
VMC-IL4615/IL4635
i.LINK Cable (4-pin to 6-pin)

NP-F570/F770/F970
InfoLITHIUM Rechargeable Battery Pack

PHDVM-63DM
DigitalMaster Mini Cassette Tape

SPECIFICATIONS

Recording/Playback performance		
Recording format		1080/60i, 1080/50i, 480/60i (NTSC), 576/50i (PAL)
Playout/Down conversion format		1080/60i, 1080/50i, 480/60i (NTSC), 576/50i (PAL), 480/60p, 576/50p
Tape speed	HDV/DV SP	Max. 18.812 mm/s with PHDVM-63DM cassette
	DVCAM	Max. 28.218 mm/s with PHDVM-63DM cassette
Playback/Recording time	HDV/DV SP	Max. 63 min with PHDVM-63DM cassette
	DVCAM	Max. 41 min with PHDVM-63DM cassette
Fast forward/Rewind time		Approx. 2 min 40 s with PHDVM-63DM cassette
Input/Output connectors/devices		
Video input/output		RCA pin x 2 Video signal: 1 Vp-p, 75 Ω unbalanced, sync negative
S-video input/output		Mini-DIN 4-pin x 2 Y: 1 Vp-p, 75 Ω unbalanced, sync negative C: 0.286 Vp-p (NTSC), 0.3 Vp-p (PAL), 75 Ω unbalanced
Component video output		RCA pin x 3 Y: 1 Vp-p (0.3 V, sync negative) Pr/Pb (Cr/Cb): 700 mVp-p (100% color bar), input impedance 75 Ω
i.LINK		4-pin
Phones		Stereo minijack (ϕ3.5 mm), 8 Ω loading
LANC		Stereo mini-minijack (ϕ2.5 mm)
Audio input		RCA pin x 2 Input level: max. 4 Vrms, input impedance: min. 47 kΩ unbalanced
Audio output		RCA pin x 2 Output level: 2 Vrms (full bit), output impedance: max. 1 kΩ
LCD monitor		3.5-inch type, approx. 250,000 pixels (1120 x 224), hybrid type
General		
Mass		Approx. 1.8 kg (3 lb 15 1/2 oz)
Power requirements		DC 8.4 V (DC IN jack), DC 7.2 V (Battery jack input)
Power consumption	HDV	6.5 W (playback mode with LCD monitor on)
	DVCAM/DV	5.7 W (playback mode with LCD monitor on)
Operating temperature		5 to 40 °C (41 to 104 °K)
Storage temperature		–20 to +60 °C (–4 to 140 °K)
Supplied accessories		Wireless Remote Commander unit, AC adaptor, power cord, stand, size AA batteries (2), cleaning cassette, operating instructions



unit: mm (inches)

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